WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2005LA33B

Title: Probabilistic Assessment of the Effectiveness of BMPs in Coastal Louisiana

Project Type: Research

Focus Categories: Non Point Pollution, Solute Transport, Water Quality

Keywords: Best Management Practices (BMPs); Hydrologic Impacts; Land Use Change; Pollution; Streamflow; Space-Time Variability; Water Quality

Start Date: 03/01/2005

End Date: 02/28/2006

Federal Funds: $16,500

Non-Federal Matching Funds: $41,342

Congressional District: 6

Principal Investigator:
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Abstract

An action plan with the major goal of reducing nitrogen discharge through Best Management Practices (BMPs) from the inland waters into the Gulf of Mexico was approved in 2001 by state, tribal, and federal agencies and was delivered to the U.S. Congress. This was principally triggered by an average midsummer threefold increase in the hypoxic zone in the northern Gulf of Mexico from 1985 to 2001. This 3-fold increase of hypoxic zone over merely 15 years was attributed to the increase of river-borne nutrients due to rapid urbanization and intensive agricultural and forest practices. These nutrients can exacerbate coastal water eutrophication, favor harmful algal blooms, aggravate oxygen depletion, and alter marine food webs. Although BMPs have been implemented for many years in coastal watersheds, these watersheds nonetheless have potential for reduced surface water quality. The question we therefore ask is: How effective have these BMPs been in protecting Louisiana's water bodies? How to quantify the effectiveness of these BMPs? How to quantify the effect of land use on the hydrologic and water quality response of watersheds? Based on the watershed hydrologic and water quality response, how to spatially characterize the source and location and extent of pollution? What is the relationship between land use and BMPs and hydrologic and water quality parameters? The objective of this proposal is to address these questions

in the Atchafalaya, Barataria, Calcasieu, Mermentau, Terrebonne, and Vermillion-Teche River basins.